Appendix G

Pulp and Paper NESHAP Control Requirements

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If You Have...	Then Control Your Operations By...	And Monitor By...[a]
Kraft Pulping, Soda Pulping, or Semi-chemical Pulping	• 98% reduction by weight of total HAP;[b] or • Introduce HAP emission stream with primary fuel or into flame zone of a boiler, lime kiln, or recovery furnace; or • Introduce HAP emission stream with combustion air of a boiler or recovery furnace with a heat input capacity of 150 MMBtu/hr or greater; or • Minimum of 1600°F and 0.75 seconds in an incinerator; or • Reduction to 20 ppmv corrected to 10 percent oxygen outlet concentration of total HAP[b] from an incinerator	Continuous parametric monitoring, except for pulping vent systems routed to a power boiler, lime kiln, or recovery furnace
Sulfite Pulping		
• Calcium-based and sodium-based pulping systems	• Outlet total HAP[b] emission level of 0.89 lb/ton ODP or less; or 92% reduction by weight of total HAP (includes air vents, wastewater and condensate streams from the control device[c])	Continuous parametric monitoring
• Ammonium-based and sodium-based pulping systems	• Outlet total HAP[b] emission level of 2.2 lb/ton ODP or less; or 87% reduction by weight of total HAP (includes air vents, wastewater and condensate streams from the control device[c])	
Mechanical Pulping	N/A (Bleaching requirements only)	N/A
Non-wood Pulping	N/A (Bleaching requirements only)	N/A
Secondary Fiber Pulping	N/A (Bleaching requirements only)	N/A
Bleaching[d]	99% reduction by weight of chlorinated HAPs,[e] or achieve outlet chlorinated HAP[e,f] concentration of 10 ppmv or less; or achieve an outlet chlorinated HAP[e,f] emission level of 0.002 lb/ton ODP or less; and separate chloroform control options	Continuous parametric monitoring
Kraft Pulping Process Condensates[g]	• Recycle to controlled piece of process equipment; or • Reduce total HAP[h] loading by at least 92% by weight; or • Achieve a minimum total HAP[h] mass removal of 10.2 lb/ton ODP (bleached mills) or 6.6 lb/ton ODP (unbleached mills); or • Achieve a maximum total HAP[h] outlet concentration[i] of 330 ppmw (bleached mills) or 210 ppmw (unbleached mills)	Continuous parametric monitoring[j]

[a] All components require monthly visual inspections for equipment leaks using Method 21.
[b] Measured as total HAPs or methanol.
[c] Mass emission limit and percent reduction includes emissions from regulated equipment system and vents, wastewater, and condensate streams from the control device.
[d] Refer to Chapter 4 of this document for specific requirements for bleaching systems.
[e] Excluding chloroform.
[f] Chlorine is used as a surrogate for chlorinated HAPs.
[g] Except for open biological treatment systems, HAPs removed during treatment or handling must be controlled to meet kraft pulping system vent standards.
[h] For open biological treatment systems, total HAPs are measured as the sum of acetaldehyde, methanol, methyl ethyl ketone, and propionaldehyde. For other treatment devices, total HAPs can be measured as the sum of acetaldehyde, methanol, methyl ethyl ketone, and propionaldehyde, or as methanol.
[i] The outlet concentration control option is not available to open biological treatment systems.
[j] Excluding open biological treatment systems, which use a combination of daily parameter monitoring and quarterly performance tests.